

Title (en)
MARTENSITIC HEAT-RESISTING STEEL HAVING EXCELLENT RESISTANCE TO HAZ SOFTENING AND PROCESS FOR PRODUCING THE STEEL

Title (de)
MARTENSITISCHER WÄRMEBESTÄNDIGER STAHL MIT HERVORRAGENDER ERWEICHUNGSBESTÄNDIGKEIT UND VERFAHREN ZU DESSEN HERSTELLUNG

Title (fr)
ACIER THERMO-RESISTANT MARTENSITIQUE DOTE D'UNE EXCELLENTE RESISTANCE A L'ADOUCCISSEMENT DES ZONES AFFECTEES THERMIQUEMENT ET PROCEDE DE PRODUCTION CORRESPONDANT

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Application
EP 95904031 A 19941228

Priority
• JP 9402302 W 19941228
• JP 35314593 A 19931228

Abstract (en)
[origin: WO9518242A1] A martensitic heat-resisting steel which contains on the mass basis 0.01-0.30 % of carbon, 0.02-0.80 % of silicon, 0.20-1.00 % of manganese, 5.00-18.00 % of chromium, 0.005-1.00 % of molybdenum, 0.20-3.50 % of tungsten, 0.02-1.00 % of vanadium, 0.01-0.50 % of niobium and 0.01-0.25 % of nitrogen, and further contains at least one element selected from the group consisting of 0.005-2.0 % of titanium, 0.005-2.0 % of zirconium, 0.005-2.0 % of tantalum and 0.005-2.0 % of hafnium, and wherein the total content of titanium, zirconium, tantalum and hafnium in the metallic component M of a carbide of M₂₃C₆ type is 5-65 %. The steel is produced by adding titanium, zirconium, tantalum and hafnium to a molten steel having the above-specified chemical composition during the period from 10 minutes before the completion of refining to the completion of refining, then casting and working the refined steel, subjecting the worked steel to solution heat-treatment, suspending the cooling step at 950 & tilde 1,000 DEG C, and holding the steel thus treated at that temperature for 5-60 minutes. The obtained steel has an excellent resistance to HAZ softening and exhibits a high creep strength at a temperature as high as 550 DEG C or above.

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IPC 8 full level
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CPC (source: EP US)
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EP4219783A1; EP1466993A1; EP1158067A1; EP0860511A1; US6007767A; US6123897A; EP3889285A4; US11441201B2; US6464804B2; WO2022111908A1; EP3119918B1

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